46. (New) The nucleic acid of claim 10, comprising the nucleic acid sequence as set forth as SEQ ID NO: 13.

47. (New) A vector comprising the nucleic acid of claim 15.

48. (New) The method of claim 36, comprising detecting the hybridization in a prostate epithelial cell of a male.

49. (New) The method of claim 36, comprising detecting the hybridization in a breast cell of a female.

50. (New) A method of detecting cancer in a subject, comprising detecting the contacting of an antibody that specifically binds a protein having the amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution in a sample from the subject, whereby detection of the binding indicates that the subject has cancer.

51. (New) The method of claim 36, wherein the subject is a male and the cell is a prostate epithelial cell.

52. (New) The method of claim 36, wherein the subject is a female and the cell is a breast cell.

53. (New) The method of claim 51, wherein the sample comprises a lymph node cell.

54. (New) The method of claim 51, wherein the sample comprises a breast biopsy cell.

REMARKS

Claims 1-44 were pending in the instant application. By this amendment, claims 1-6, 10, 15-20, 24-36, 40-44 are amended, claims 7-9, 11-14 and 21-23 are canceled, claims 37-39 are reiterated, and claims 45-54 are added. Therefore, after entry of this amendment, claims 1-6, 10,

15-20, and 24-54 are now pending. No new matter is added. Examination of the patent application is respectfully requested.

Amendments

No new matter has been added by these amendments. Support for the language of these amendments can be found throughout the specification, and specifically on the pages noted below:

Claim	Amendment	Support in Specification
1	Substantially purified SEQ ID NO: 14 Variant Conservative substitution	Pg. 18, lines 26-32 Pg. 7, line 9 Pg. 17, line 35 Pg. 18, lines 14-25
2	Substantially purified SEQ ID NO: 14 Variant Conservative substitution	Pg. 18, lines 26-32 Pg. 7, line 9 Pg. 17, line 35 Pg. 18, lines 14-25
3	Substantially purified SEQ ID NO: 14 Variant Conservative substitution	Pg. 18, lines 26-32 Pg. 7, line 9 Pg. 17, line 35 Pg. 18, lines 14-25
4	Substantially purified SEQ ID NO: 14	Pg. 18, lines 26-32 Pg. 7, line 9
5	Substantially purified SEQ ID NO: 14	Pg. 18, lines 26-32 Pg. 7, line 9
6	Changed dependency to claim 1	Pg. 41 line 16-pg. 42, line 9
7	Canceled	
8	Canceled	
9	Canceled	
10	Substantially purified Changed dependency to claim 1	Pg. 18, lines 26-32 Claim 1 as originally filed
11	Canceled	
12	Canceled	
13	Canceled	
14	Canceled	
15	Substantially purified Amendment of form	Pg. 18, lines 26-32
16	Substantially purified Amendment of form SEQ ID NO: 14 Variant	Pg. 18, lines 26-32 Pg. 7, line 9 Pg. 17, line 35

	Conservative substitution	Pg. 18, lines 14-25
17	Substantially purified Amendment of form SEQ ID NO: 14 Variant Conservative substitution	Pg. 18, lines 26-32 Pg. 7, line 9 Pg. 17, line 35 Pg. 18, lines 14-25
18	Substantially purified SEQ ID NO: 14	Pg. 18, lines 26-32 Pg. 7, line 9
19	Substantially purified SEQ ID NO: 14	Pg. 18, lines 26-32 Pg. 7, line 9
20	Specified that method is for eliciting immune response Expression vector Changed dependency to claim 1 Substantially purified Thereby eliciting an immune response	Pg. 28, line 1 to pg. 33, line 10 Pg. 20, line 30 - 32 Claim 1 as originally filed Pg. 18, lines 26-32 Amendment of form
21	Canceled	
22	Canceled	
23	Canceled	
24	Amendment of form	
25	Amendment of form	
26	At risk for developing	Specifying subject identity (pg. 28, lines 19-21)
27	Amendment of form Sensitized with antigen presenting cells pulsed with a polypeptide SEQ ID NO: 14 Variant Conservative substitution	 Pg 31, lines 26-31 Pg. 7, line 9 Pg. 17, line 35 Pg. 18, lines 14-25
28	Amendment of form	
29	SEQ ID NO: 14 Variant Conservative substitution	Pg. 7, line 9 Pg. 17, line 35 Pg. 18, lines 14-25
30	Amendment of form Substantially purified	 Pg. 18, lines 26-32
31	SEQ ID NO: 13 Degenerate version	Pg. 7, line 6 Pg. 20, line 6
32	Method of eliciting immune response Composition Changed dependency to claim 15	Pg. 28, line 1 – pg 33, line 10 Pg. 28, lines 19-21 Claim 15 as originally filed
33	Method of eliciting an immune response comprising administering a composition Changed dependency to claim 15	Pg. 28, line 1 – pg 33, line 10 Claim 15 as originally filed
34	Cytotoxic T lymphocytes	Pg. 16, lines 11-12

35	Cytotoxic T cells	Pg. 16, lines 11-12
36	In a subject Detecting hybridization of a probe Sample Polypeptide of claim 1 Hybridization indicates cancer	Pg. 40, lines 28-30, describing samples taken from a subject Pg. 41, lines 1-4 Pg. 40, lines 28-30. Claim 1 as originally filed Pg. 41, lines 5-6
37	Reiterated	
38	Reiterated	
39	Reiterated	
40	Amendment of form	
41	Hybridization is detected in a sample comprising a cell of the subject	Pg. 39, line 23 – pg. 41, line 14
42	Hybridization is detected in a sample comprising a cell of the subject	Pg. 39, line 23 – pg. 41, line 14
43	Polypeptide of claim 1	Claim 1 as originally filed
44	Protein comprising SEQ ID NO: 14 Nucleic acid of claim 10 Nucleic acid of claim 10 Operatively linked to a promoter	Pg. 7, line 9 Claim 10 as originally filed Claim 10 as originally filed Pg. 20, line 16-24

New claims

Claims 45-55 are added by this amendment. Support for these claims in the specification as filed may be found as follows:

Claim	**Amendment**	**Support in Specification**
45	Part of original claim 1, divided out	Claim 1 as originally filed
46	Part of original claim 10, divided out and substituting the sequence identifier, SEQ ID NO: 13	Claim 10 as originally filed, Pg. 7, line 6
47	Part of original claim 15, divided out	Claim 15 as originally filed
48	Derivation of cell from subject and returning cell as active immunization	Page 27, lines 24-34 and claims 36 and 39 as originally filed
49	Method of detecting cancer in a female	Pg. 39, line 23 – pg. 41, line 14
50	Method of detecting cancer in a subject	Pg. 39, line 23 – pg. 41, line 14
51	Method of detecting cancer in a male	Pg. 39, line 23 – pg. 41, line 14
52	Method of detecting cancer in a female	Pg. 39, line 23 – pg. 41, line 14
53	Detection in a lymph node cell	Pg. 40, lines 28-30.

54	Detection in a breast biopsy cell	Pg. 40, lines 28-30.

No new matter is added.

CONCLUSIONS

If any minor matters remain to be discussed prior to examination, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

KLARQUIST SPARKMAN, LLP

By _____
Susan Alpert Siegel, Ph.D.
Registration No. 43,121

One World Trade Center, Suite 1600
121 S.W. Salmon Street
Portland, Oregon 97204
Telephone: (503) 226-7391
Facsimile: (503) 228-9446

Marked-up Version of Amended Claims
Pursuant to 37 C.F.R. §§ 1.121(b)-(c)

WHAT IS CLAIMED IS:

7. (Amended) [An isolated] A substantially purified polypeptide [comprising an amino acid sequence] comprising:

[selected from the group consisting of a TCRγ Alternate Reading frame Protein ("TARP"),] (a) an amino acid sequence set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution;

(b) an immunogenic fragment [thereof] of the protein comprising the amino acid sequence set forth as SEQ ID NO: 14, or variant thereof having a conservative substitution;[,]

(c) a polypeptide with at least 90% sequence identity to [TARP] the amino acid sequence set forth as SEQ ID NO: 14 [and which] that is specifically recognized by an antibody [which] that specifically recognizes [TARP] the protein comprising the amino acid sequence set forth as SEQ ID NO: 14;[, and] or

(d) a polypeptide [which] that has at least 90% sequence identity with [TARP] the amino acid set forth as SEQ ID NO: 14 and [which] that, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells [which] that express [TARP] the protein encoded by the amino acid sequence set forth as SEQ ID NO: 14.

8. (Amended) [An isolated] The substantially purified polypeptide of claim 1, wherein the polypeptide comprises [the sequence of TARP] the amino acid sequence set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

9. (Amended) [An isolated] The substantially purified polypeptide of claim 1, wherein the [polypetide] polypeptide comprises [the sequence of] an immunogenic fragment of [TARP] the amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

10. (Amended) [An isolated] The substantially purified polypeptide of claim 1, [which] wherein the [polypetide] polypeptide has at least 90% sequence identity to [TARP] an amino acid sequence as set forth as SEQ ID NO: 14 and is specifically recognized by an antibody [which] that specifically recognizes [TARP] the amino acid sequence as set forth as SEQ ID NO: 14.

11. (Amended) [An isolated] The substantially purified polypeptide of claim 1, [which] wherein the polypeptide has at least 90% sequence identity [with TARP] to the amino acid sequence as set forth as SEQ ID NO: 14 and [which] that, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells [which] that express [TARP] the protein encoded by the amino acid sequence as set forth as SEQ ID NO: 14.

12. (Amended) A composition comprising a polypeptide of claim [2] 1 and a pharmaceutically acceptable carrier.

Please cancel claims 7-9.

10. (Amended) [An isolated,] A substantially purified recombinant nucleic acid molecule [comprising a nucleotide sequence encoding a polypeptide having the amino acid sequence of a TCRγ Alternate Reading frame Protein ("TARP"), an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP, and a polypeptide which has at least 90% sequence identity with TARP and which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP] encoding the polypeptide of claim 1.

Please cancel claims 11-14.

15. (Amended) The [isolated,] substantially purified recombinant nucleic acid molecule of claim 10 [which is an expression vector comprising a promoter], [operativcly] operably linked to a promoter [the nucleotide sequence].

16. (Amended) The [isolated,] substantially purified recombinant nucleic acid molecule of claim 15, wherein [said] the nucleotide sequence encodes a polypeptide [having] comprising the amino acid sequence [of a TCRγ Alternate Reading frame Protein ("TARP")] as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

17. (Amended) The [isolated,] substantially purified recombinant nucleic acid molecule of claim 15, wherein [said] the nucleotide sequence encodes a polypeptide [having] comprising the amino acid sequence of an immunogenic fragment of [TARP] the protein comprising the amino acid sequence as set forth as SEQ ID NO: 14, or variant thereof having a conservative substitution.

18. (Amended) The [isolated,] substantially purified recombinant nucleic acid molecule of claim 12, wherein [said] the nucleotide sequence encodes a polypeptide with at least 90% sequence identity to [TARP] an amino acid sequence as set forth as SEQ ID NO: 14 and [which] that is specifically recognized by an antibody [which] that specifically recognizes [TARP] a protein comprising the amino acid sequence as set forth as SEQ ID NO: 14.

19. (Amended) The [isolated,] substantially purified recombinant nucleic acid of claim 12, wherein [said] the nucleotide sequence encodes a polypeptide [which] that has at least 90% sequence identity [with TARP] to the amino acid sequence as set forth as SEQ ID NO: 14 and [which] that, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells [which] that express [TARP] the amino acid sequence as set forth as SEQ ID NO: 14.

20. (Amended) A method for eliciting an immune response in a subject, comprising administering to a subject a composition [, which composition is selected from the group consisting of: an isolated polypeptide having the amino acid sequence of a TCRγ Alternate

Reading frame Protein ("TARP"), an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP, a polypeptide which has at least 90% sequence identity with TARP and which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP], comprising:

(a) the polypeptide of claim 1;

(b) [an isolated] a substantially purified nucleic acid encoding [one of these] the polypeptide[s] of claim 1 in an expression vector;

(c)[,] an antigen presenting cell pulsed with a polypeptide comprising an epitope of [TARP,] the polypeptide of claim 1 [and cells sensitized in vitro to TARP], or an immunogenic fragment thereof, [a polypeptide with at least 90% sequence identity to TARP which is specifically recognized by an antibody which specifically recognizes TARP, or a polypeptide which has at least 90% sequence identity with TARP which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP.]

thereby eliciting an immune response in the subject.

Please cancel claims 21-23.

24. (Amended) The method of claim 20 wherein the [administration to a] subject [who suffers from] has prostate cancer.

25. (Amended) The method of claim 20, wherein the [administration is to a] subject [who suffers from] has breast cancer.

26. (Amended) The method of claim 20, wherein the [administration is to a female] subject [who has not been diagnosed with] is a female at risk for developing breast cancer.

27. (Amended) The method of claim 20 wherein the [administration] administered composition further comprises [sensitizing] CD8+ cells [*in vitro* to an epitope of a TARP protein and administering the sensitized cells to the subject] that are sensitized with antigen presenting

cells pulsed with a polypeptide comprising an epitope of the protein having an amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

28. (Amended) The method of claim 20, further comprising co-administering to the subject an immune adjuvant [selected from] comprising a non-specific immune [adjuvants] adjuvant, a subcellular microbial [products] product and [fractions] fraction, a [haptens] hapten, an immunogenic [proteins] protein, an [immunomodulators] immunomodulator, an [interferons] interferon, a thymic [hormones] hormone [and], or a colony stimulating [factors] factor.

29. (Amended) The method of claim 20, comprising administering an antigen presenting cell pulsed with a polypeptide comprising an epitope of [TARP] the protein having an amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

30. (Amended) The method of claim 20 [comprising administering a], wherein the substantially purified nucleic acid [sequence encoding polypeptide comprising an epitope of TARP, which nucleic acid] is in a recombinant virus.

31. (Amended) The method of claim 20 [comprising administering a] wherein the nucleic acid has a sequence as set forth as SEQ ID NO: 13 or a degenerate version thereof. [encoding a polypeptide comprising an epitope of a TARP protein].

32. (Amended) [The] A method of [claim 20] eliciting an immune response, comprising administering [an expression vector that expresses a polypeptide] to a subject a composition, comprising [an epitope of a TARP protein, which expression vector is in] a recombinant bacterial cell comprising the nucleic acid molecule of claim 15.

33. (Amended) [The] A method of [claim 20] eliciting an immune response, comprising administering to a subject a composition, comprising [immunizing the subject with a expression vector that expresses a polypeptide comprising an epitope of a TARP protein, which

expression vector is in] an autologous recombinant cell comprising the nucleic acid molecule of claim 15.

34. (Amended) The method of claim 27 wherein the CD8+ cells are [T_C cells] cytotoxic T lymphocytess.

35. (Amended) The method of claim 34 wherein the [T_C cells] cytotoxic T lymphocytes are tumor infiltrating lymphocytes.

36. (Amended) A method for detecting[, in a male, a prostate cell of epithelial origin, or, in a female,] a [breast] cancer in a subject [cell], comprising detecting in a [cell] sample from [said male or said female] the subject the hybridization of a probe specific for a nucleic acid [transcript encoding TARP, or detecting TARP produced by translation of the transcript] that encodes the polypeptide of claim 1, whereby [detection of the transcript or of the protein in a cell from said male identifies the cell as a prostate epithelial cell and whereby detection of the transcript or of the protein in a cell from said female identifies the cell as a breast] the hybridization of the probe to the nucleic acid indicates that the subject has cancer [cell].

37. (Reiterated) The method of claim 36, comprising detecting the transcript.

38. (Reiterated) The method of claim 36, comprising detecting the protein.

39. (Reiterated) The method of claim 36, comprising contacting RNA from the cell with a nucleic acid probe that specifically hybridizes to the transcript under hybridization conditions, and detecting hybridization.

40. (Amended) The method of claim 36, comprising disrupting [said] the cell and contacting a portion of the cell contents with a chimeric molecule comprising a targeting moiety and a detectable label, wherein the targeting moiety specifically binds to the protein, and detecting the label bound to the protein.

41. (Amended) The method of claim 36, wherein the [cell is taken from] hybridization is detected in a sample comprising a lymph node cell of the subject.

42. (Amended) The method of claim 36, wherein the [cell is taken from] hybridization is detected in a sample comprising a breast biopsy cell of the subject.

43. (Amended) An antibody that specifically binds to [an epitope of a TCRγ Alternate Reading frame Protein] the polypeptide of claim 1.

44. (Amended) A method of modulating levels of [TARP] a protein comprising the amino acid sequence as set forth as SEQ ID NO: 14 in a cell, [said] comprising introducing into [said] the cell a composition [selected from the group consisting of] comprising: a ribozyme [which] that specifically cleaves a [TARP-encoding] nucleic acid of claim 10, an antisense oligonucleotide [which] that specifically binds to a [TARP-encoding] nucleic acid of claim 10, a DNA binding protein [which] that binds specifically to a [TARP-encoding] nucleic acid of claim 10, [and] or a nucleic acid of claim 10, [encoding TARP] operatively linked to a promoter.

Please add the following new claims:

45. (New) The substantially purified polypeptide of claim 1, wherein the polypeptide comprises the amino acid sequence set forth as SEQ ID NO: 14.

46. (New) The nucleic acid of claim 10, comprising the nucleic acid sequence as set forth as SEQ ID NO: 13.

47. (New) A vector comprising the nucleic acid of claim 15.

48. (New) The method of claim 36, comprising detecting the hybridization in a prostate epithelial cell of a male.

49. (New) The method of claim 36, comprising detecting the hybridization in a breast cell of a female.

50. (New) A method of detecting cancer in a subject, comprising detecting the contacting of an antibody that specifically binds a protein having the amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution in a sample from the subject, whereby detection of the binding indicates that the subject has cancer.

51. (New) The method of claim 36, wherein the subject is a male and the cell is a prostate epithelial cell.

52. (New) The method of claim 36, wherein the subject is a female and the cell is a breast cell.

53. (New) The method of claim 51, wherein the sample comprises a lymph node cell.

54. (New) The method of claim 51, wherein the sample comprises a breast biopsy cell.